

- (2) The Diary of William Shakespeare Hall, 1861. Copies from the originals by J. H. Clifton, 1928. W.A. Historical Society. Entry for May 15th.
- (3) J. Clarke, Conservation Geologist, W.A. Museum; personal communication. March 1975.

The writer wishes to acknowledge with thanks the help and advice of Bill Curry, whose co-operation and forbearance made this preliminary survey possible.

Details of all sites, including maps and photographs are on file with the Registrar of Aboriginal Sites, W.A. Museum.

## NESTING OF BANDED STILTS AT LAKE BALLARD

By C. F. H. JENKINS

The Banded Stilt (*Cladorhynchus leucocephalus*) has been known to science for almost 160 years and yet it still remains one of Australia's mystery birds. Each summer flocks of these stilts, or Rottnest Snipe, appear on the Rottnest salt lakes and other waters along the west coast, but during the breeding season the birds disappear inland and for more than a hundred years they managed to conceal their nesting habits from the prying eyes of even the most ardent bird watchers.

The first breakthrough came in the winter of 1930 when eggs, photographs and dead birds taken at Lake Graec were forwarded to the Western Australian Museum by Mrs. B. E. Cannon of Kukerin. A comparison of these eggs with those of the White-headed Stilt (*Himantopus himantopus*), confirmed that the Lake Graec eggs were indeed new to science.

Remarkably enough the next breeding record of this stilt came in December of the same year when eggs were collected at Lake Callabona in the north of South Australia (McGilp and Morgan, 1931). Despite the increased interest aroused by these two nesting records and a watching brief by various naturalists no further breeding activity was recorded until 1945 and 1946—two very wet years—when nesting again took place at Lake Graec, but on both occasions, the eggs were flooded before the chicks could hatch (Serventy & Whittell, 1967).

The latest record of a successful breeding in Western Australia came from Lake Ballard, about eight miles north-west of Menzies, in July 1973.

Police sergeant Alan Middleton reported the occurrence and confirmed it by forwarding newly hatched chicks to the Perth Zoological Gardens where they were successfully reared by the Director, Mr. Tom Spence.

Middleton stated that approximately 13 inches of rain fell at Menzies from May to October and that about 60 breeding pairs occupied samphire flats on the edge of the lake. Brinc shrimps, *Parartemia* sp., were said to be present, but not numerous and the birds had access to extensive areas of water about four inches deep.

Unfortunately, various predators were attracted to the area including Aborigines (to whom the chicks are a delicacy), crows, hawks (including Grey Falcons) and foxes. The clutch size, as at the original Lake Graec site, varied from three to four but Middleton estimates that only about 10 per cent of the chicks normally survive.

Middleton also reported that although no nesting colony was actually found, the Banded Stilts certainly bred in the Menzies district in 1963 when numbers of chicks walked through the town.

This recalls a much earlier reference to chicks walking by T. Smith of Kalgoorlie who, writing to the Curator of the Museum, Mr. L. Glauert, referred to "the migration of young 'Rottnest Snipe' which took place from

a large lake some distance from Menzies this spring" (1929). Smith continued: "they must have died by the hundred thousands for a strip of country about 30 miles wide was literally white with dead birds" (Glauert & Jenkins, 1931).

Fortunately several of the stilt chicks received at the zoo in 1973 are still thriving and observations on these and other older birds made by Mr. Spence have revealed some interesting plumage changes.

The characteristic chestnut band has generally been taken as a sign of maturity and white-breasted birds have been regarded as immature. But some of the captive birds have been seen to lose their chestnut feathers and to moult into the white "immature" plumage, suggesting that as with many other waders, the Banded Stilt may have an "eclipse" phase characterised by the loss of the chestnut band. If this is correct then many of the white-breasted birds seen on the coastal plain and at Rottnest (Storr, 1965) during the summer time may not be immature birds, but adults in non-breeding plumage.

Another interesting feature noted by Mr. Spence (pers. comm.) was that when feeding, the very young chicks adopted a side to side or scything action with the bill reminiscent of the Avocet (*Recurvirostra novaehollandiae*). This habit is not noticeable in adult birds.

Although there is no close relationship between flamingos and stilts there are some remarkable similarities in their breeding habits. For instance, as with the Banded Stilt, the breeding habits of the Lesser Flamingo (*Phoeniconaias minor*) of Africa was shrouded in legend and mystery for many years and the true story was not revealed until Leslie Brown (Brown, 1960) flew over large breeding colonies in Lake Natron—one of the alkaline lakes of Tanganyika. He reported large parties of chicks walking many kilometres to the shore and the heavy mortality which accompanied this mass movement.

A major trek of the Lesser Flamingo was also recorded by Hugh Berry when thousands of chicks walked to the nearest source of water after Etosha Pan in South-west Africa dried up in 1971. They travelled 80 km and were fed en route by the parents "who flew ahead to the place where they were going and returned with food for the chicks" (Anon., 1973).

It is worthy of note that although flamingos do not occur naturally in Australia at the present time, fossil remains have been found at Lake Eyre in South Australia, not far from the region in which the Banded Stilts nested in 1930 (Stirton *et al.*, 1961). It is interesting to reflect upon the changing conditions which caused the flamingos to disappear from the scene and the stilts to survive or perhaps take their place.

## REFERENCES

- ANON. 1973. The Wildfowl Trust, Bull. No. 67, p. 6.
- BROWN, L. 1960. *The Mystery of the Flamingo*. Collins, London.
- GLAUERT, L. & C. F. H. JENKINS. 1931, Notes on the Banded Stilt *Cladorhynchus leucocephalus*, with a description of its eggs. *Jour. Roy Soc. W. Aust.*, p. 1.
- MCGILP, J. N. & A. M. MORGAN, 1931, The Nesting of the Banded Stilt *Cladorhynchus leucocephalus*, *South Austr. Ornith.*, 11, p. 35.
- SERVENTY, D. L. & H. M. WHITTELL. 1967, *Birds of Western Australia*, 4th edn. Lamb Pub. Pty. Ltd. Perth.
- STIRTON, *et al.*, 1961. The Caenozoic Stratigraphy and Vertebrate Paleontology of the Tirari Desert, South Aust. *Rec. South Aust. Mus.*, 14: 35.
- STORR, G. M. 1964. The Avifauna of Rottnest Island, Western Australia. *Emu*, 64: 105-112.